

**IN THE U.S. PATENT AND TRADEMARK OFFICE**

In re application of: Koichi OHTO

Appl. No.: **NEW** Group:

Filed: July 21, 2003 Examiner:

For: **METHOD FOR FORMING A CAPPING LAYER ON A  
COPPER INTERCONNECT (as amended)**

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, DC 20231

July 21, 2003

Sir:

The following preliminary amendments and remarks are respectfully submitted in connection with the above-identified application.

**IN THE TITLE:**

Please change the title throughout the application to,  
--METHOD FOR FORMING A CAPPING LAYER ON A COPPER INTERCONNECT--.

**IN THE SPECIFICATION:**

Please replace the paragraph beginning on pages 2-3,  
line 13, with the following rewritten paragraph:

--In a damascene method widely used for forming the interconnect by using the copper as the interconnect material, trenches formed in the interlayer dielectric film are filled with

a barrier metal and the copper, and the surplus copper and the surplus barrier metal on the dielectric film are removed by the chemical mechanical polishing to form the interconnect. In the current damascene method, since the copper easily reacts with the  $\text{SiO}_2$  and diffuses during the formation of the interlayer dielectric film after the damascene interconnect formation, a cap dielectric film made of  $\text{SiN}$  for the copper having a thickness of about 50 to 100 nm is formed by the plasma CVD using the  $\text{SiH}_4$ ,  $\text{NH}_3$  and  $\text{N}_2$ . Thereafter, the interlayer dielectric film made of  $\text{SiO}_2$  is formed.--.

Please replace the paragraph beginning on page 8, line 11, with the following rewritten paragraph:

--In a second embodiment, a  $\text{SiN}$  film was formed in accordance with procedures sequentially shown in Fig. 3A to 3F.--